

CLAIMS

1. Method of digitally equalising sound from loudspeakers placed in a room having a combined loudspeaker/room transfer function, said method comprising placing a microphone in the room, emitting one or more pulses from a loudspeaker through an amplifier and measuring the impulse response in a desired listening position, said method is characterized in the following steps:
- a) the measured impulse responses are pre-processed by an algorithm and weighted
- b) the output from the pre-processing algorithm is split by an algorithm and adapted to at least two frequency bands using cross-over filters and down sampling
- c) the output from the band splitting algorithm is fed to at least two frequency band correction filter design algorithms
- d) the output from the band correction filter design algorithms are fed to a delay and amplitude aligning algorithm
- e) the output from the aligning algorithm is fed to a post processing algorithm
- f) storing and using the output from the post processing algorithm to equalise in real time a sound source that is fed to the amplifier.
2. Method according to claim 1, characterized in that the output from the pre-processing algorithm is divided into typically three

frequency bands, said tree bands are low-, mid- and high frequency bands respectively.

- 5 3. Method according to claim 1 or 2, characterized in that the output from the pre-processing algorithm is used as an input in a pre-correction algorithm, said pre-correction algorithm having at least one more input adapted to receive an output from one or more optional circuits representing certain acoustic impacts on a sound received in the listening position and said pre-correcting algorithm having an output
10 that is fed to the frequency band correction filter design algorithm.
- 15 4. Method according to claim 3, characterized in that one of the optional circuits represents parameters measured from a loudspeaker under ideal conditions in an anechoic room.
- 20 5. Method according to claim 3 or 4, characterized in that one of the optional circuits represents parameters derived from psycho acoustic conditions.
- 25 6. Method according to claim 2 – 5, characterized in that in the first 30 ms the reflections in the measured impulse response are attenuated more strongly than in the rest of the impulse response.
- 30 7. Method according to claims 1 – 6, characterized in that the aligning algorithm comprises aligning functionality for synchronising the output from the band filters.
8. Method according to claim 1 – 7, characterized in that the aligning algorithm further comprises scaling and summation functionality.
9. Method according to claims 1 – 8, characterized in that the

correction is performed in respect of certain part of a room in which the listener is placed.

10. Use of a method according to claims 1 –9 in a multi channel set-up of speakers.

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